

Public Epidemic Prevention Guide Against COVID-19

V 2.0

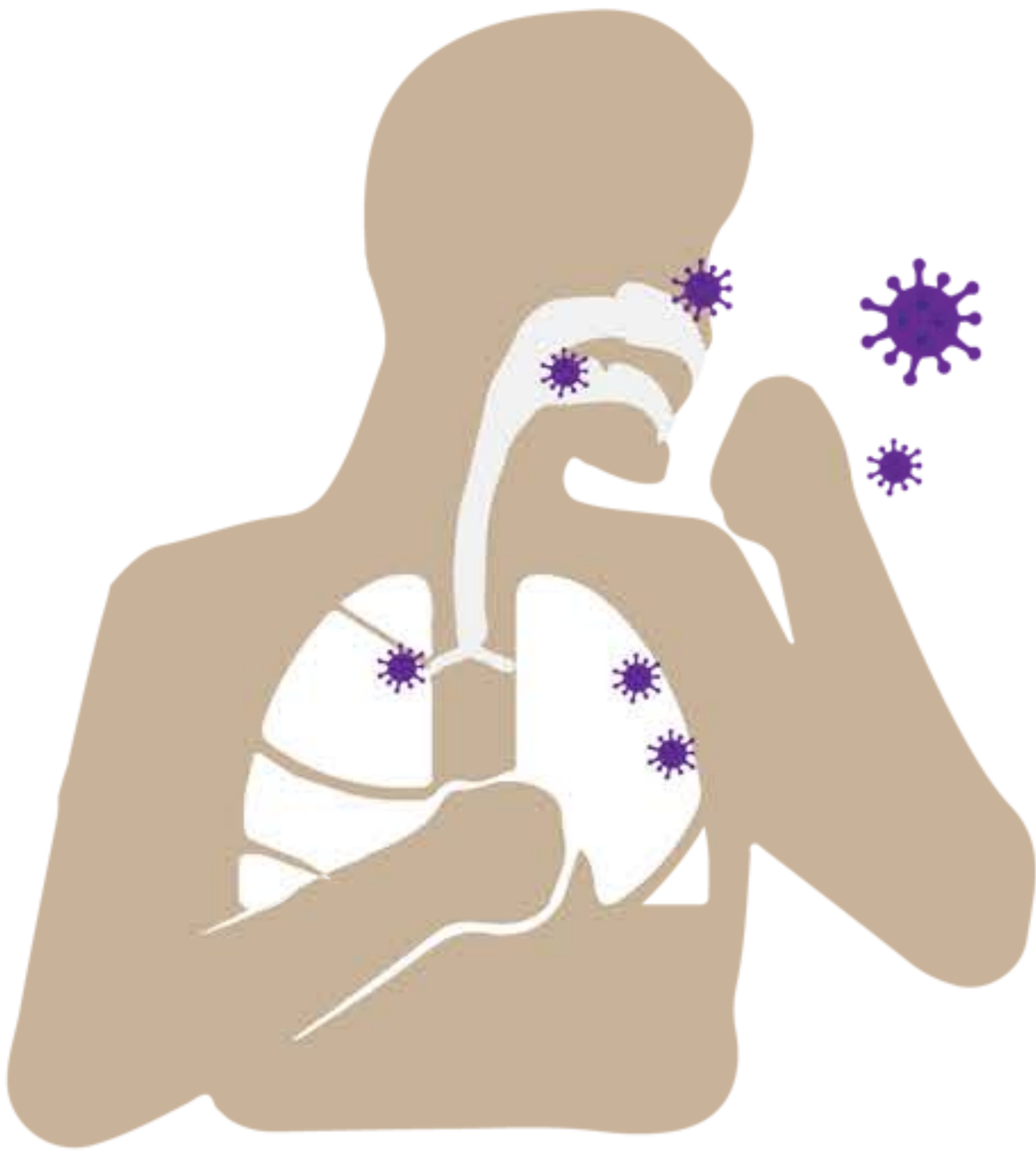
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**TONGJI UNIVERSITY
COLLEGE OF DESIGN AND
INNOVATION**

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SustainX Research Center



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1 What is a COVID-19?

1.1 A Brief Description

“Coronavirus disease 2019” (abbreviated “COVID-19”) is the infectious disease caused by the most recently discovered coronavirus. The virulence and capacity for transmission of the virus, and the length of the incubation period for COVID-19 make it extremely difficult for countries to contain the spread of the virus and adequately administer patient care. On March 12, 2020, the WHO officially declared COVID-19 a pandemic.



Time of survival on surfaces or objects

Studies suggest that coronaviruses (including preliminary information on the COVID-19 virus) may persist on surfaces for up to several days.



Incubation period

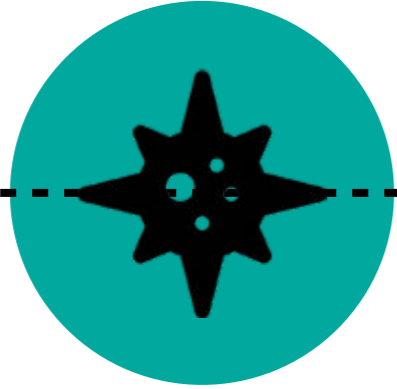


From 1-14 days: most commonly around five days.



Resistance

The novel coronavirus is sensitive to ultraviolet rays and heat. Lipid solvents such as ether, 70-80% ethanol, chlorine-containing disinfectant, peracetic acid, and chloroform or heating at 56°C (132°F) for 30 minutes can effectively deactivate the virus. Chlorhexidine has not been able to deactivate the virus.

1.2 Comparison of Symptoms Between Colds, Flu, and COVID-19

	COLDS	SEASONAL INFLUENZA	COVID-19
Pathogenic factor	 Rhinoviruses, coronaviruses, etc.	 Flu virus (multiple)	 Novel coronavirus
Incubation period	1-3 days	1-4 days	1-14 days; typically 3-7 days
Symptoms	<div>Cough</div> <div>Runny nose</div> <div>Stuffy nose</div> <div>Sore throat</div> <div>Generally refers to people with cold, fatigue and other factors caused by upper respiratory (rhinopharyngeal) symptoms as the main manifestation of the disease.</div> <div>Normally after 48-72 hours.</div> <div>Antipyretics are effective. There is not much change to mental state, appetite, and sleep patterns.</div>	<div>High fever</div> <div>Cough</div> <div>Runny nose, sneezing</div> <div>Diarrhea</div> <div>Vomiting</div> <div>Muscle aches</div> <div>Respiratory diseases caused by an influenza virus infection also cause pneumonia, which is usually epidemic in winter and spring. Those with mild onset of illness do not need to take medication, and can take general treatment to relieve symptoms, such as drinking warm water, bed rest, keeping mouth and nose clean, and using Anti-invectives. If the condition continues to worsen, antiviral treatment should be administered.</div>	<div>Asymptomatic (no symptoms)</div> <div>The virus is present in the respiratory tract; there are no outward signs of disease or pneumonia. Anyone potentially exposed to the virus outbreak areas should report their symptoms to the proper authorities, and socially isolate as much as possible</div> <div>Mild</div> <div>Fever</div> <div>Fatigue</div> <div>Dry cough</div> <div>Potential nasal congestion, runny nose, and diarrhea.</div> <div>Severe</div> <div>Shortness of breath</div> <div>Respiratory failure</div> <div>Multiple organ damage</div>

2 How Does the Virus That Causes COVID-19 Spread? How Can You Protect Yourself?



Sources of Infection

The sources of infection thus far appear to be patients already carrying the virus. They may be showing signs of COVID-19, or may present as asymptomatic.

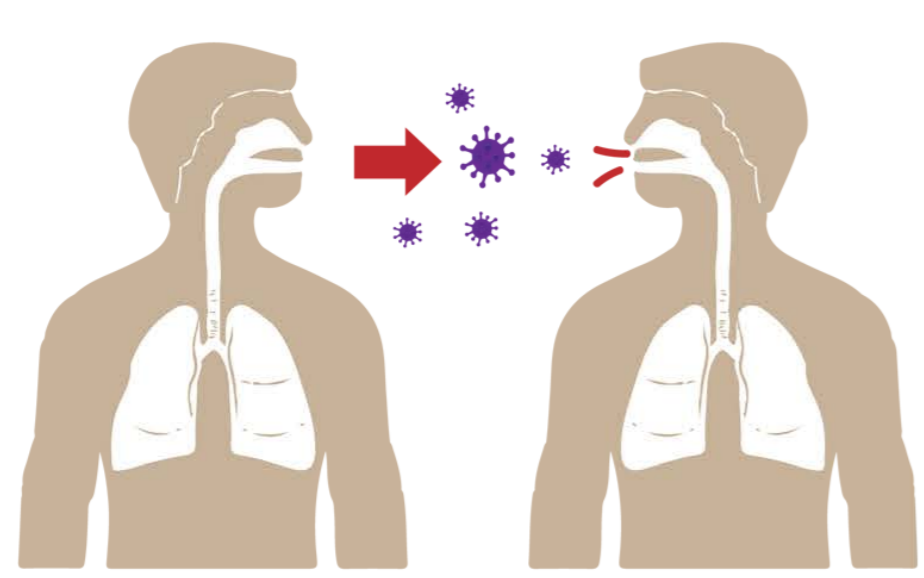


Vulnerable populations

The entire population is susceptible to the virus. The elderly and those with existing health conditions seem to be at higher risk of developing more serious cases of COVID-19. Children and infants can also develop the disease.

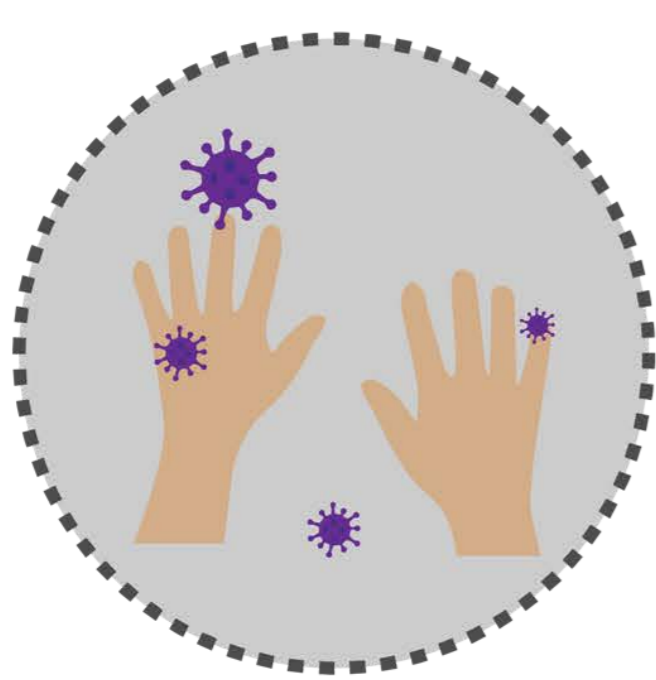


Ways the Virus Spreads



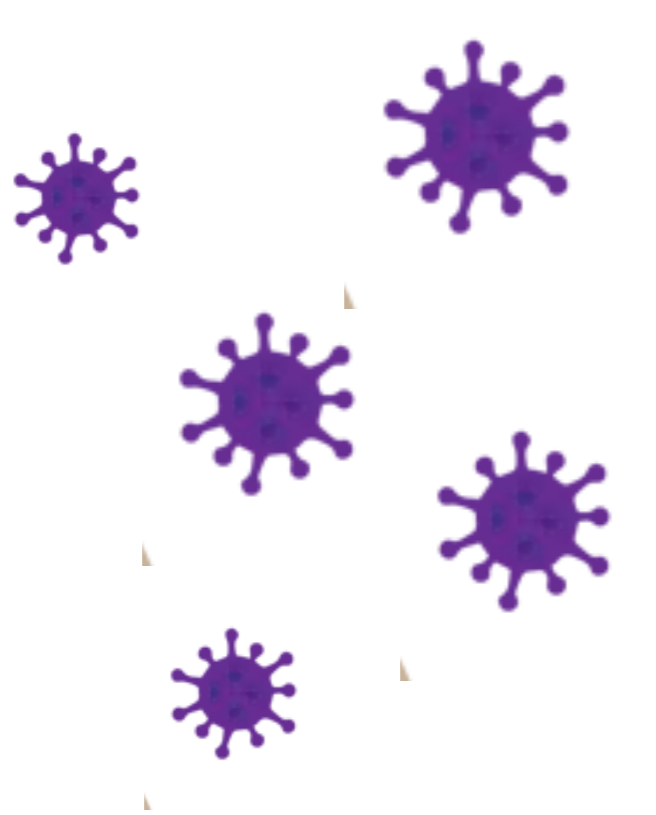
Direct transmission via droplet

Directly inhale the patient's droplets from sneezing, coughing, speaking, and exhaled breath.



Indirect transmission

Virus-contaminated droplets remain on surfaces and can be transferred by hand to the mucous membranes of the mouth, nose, and eyes.



Aerosol transmission

Droplets dry quickly in the air, their volume shrinks into small, light "droplet core" particles; droplet core particles can float far and for long periods of time, posing a greater risk of infection through inhalation.



Everyday Virus-Sustaining Surfaces

The novel virus survives longer on stainless steel, plastic, and waterproof surfaces.

2 How Does the COVID-19 Virus Spread? How Can You Protect Yourself?

2.1 Wear a mask properly

For the general public: use disposable medical masks wherever possible.

In areas of widespread outbreak: use medical/surgical masks or medical protective masks (N95 / KN95) as a rule.

NB: masks with a breathing valve only protect the person wearing them, but not others. Only healthy people should use them.

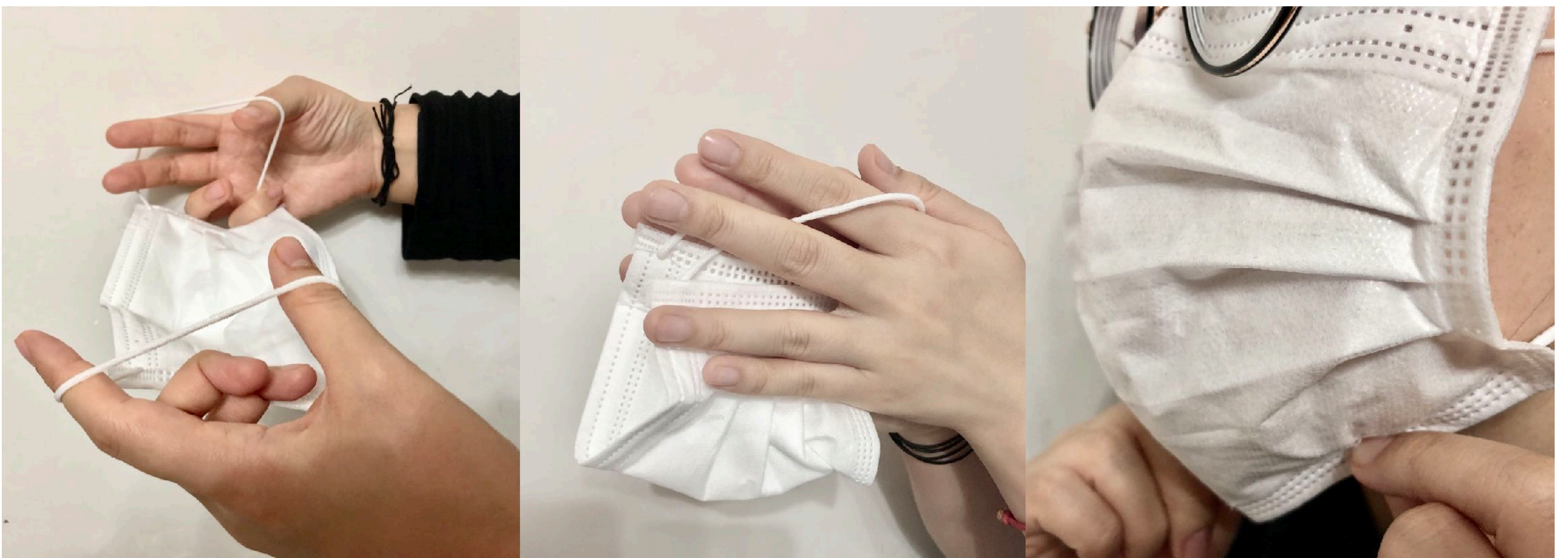
Mask Preservation, Cleaning, Disinfection, and Disposal

- If you need to reuse your mask, you can hang it in a clean, dry, well-ventilated area, or place it in a clean, breathable paper bag. Masks should be stored separately to avoid contact with each other and should bear the user's name.
- Medical standard protective masks cannot be cleaned, nor can they be disinfected by disinfectants, heating, etc.
- Masks used by the general population should be disposed of in accordance with the classification requirements of domestic waste. Suspected patients' and their caregivers' used masks should be collected and disposed of as medical waste, and anybody handling them should carefully wash their hands.



How to Wear a Mask Correctly

Cover the the nose and mouth as much as possible to prevent air leakage and effectively filter virus-infected droplets and particles. Adjust the position of the mask with the nose clip and adjust the head-/earbands according to your face shape: be sure to completely cover your nose, mouth, and jaw to ensure that the mask does not leak. Check the tightness of the mask with each wear: hold the mask and exhale. If you feel air leaking from the nasal clip area, readjust the clip to make it fit more snugly. If you feel air leaking from both sides of the mask, adjust the head-/earbands.



Tips: To protect your eyes when anti-fog glasses are in short supply, regular glasses can be used instead.

- 1) Wash your hands before putting on your mask.
- 2) Identify the front and back sides. Generally, the front side is colored with folds facing downwards. The metal strip is the upper edge.
- 3) Fold the mask in half from the middle to create a crease, which tends to fit the contours of the face better.
- 4) Fan out the pleated folds of the mask so that it completely covers the nose, mouth, and chin.
- 5) Press the metal strip of the mask tightly over the bridge of the nose.
- 6) Avoid touching your mask after you put it on. If you must touch it, wash your hands thoroughly before and after.

2.2 Wash your hands frequently



(1) Rub your palms along your fingers.



(2) Alternate rubbing your palms along the backs of your fingers.



(3) Interlock and rub up and down along the insides of your fingers.



(4) Alternate placing the knuckles of one hand on the palm of the other and rubbing in circles.



(5) Hold the thumb of one hand with the other hand and rotate the hand around that thumb. Alternate.



(6) Alternate placing the heel of one hand in the palm of the other, and rotating the palm around the heel and wrist

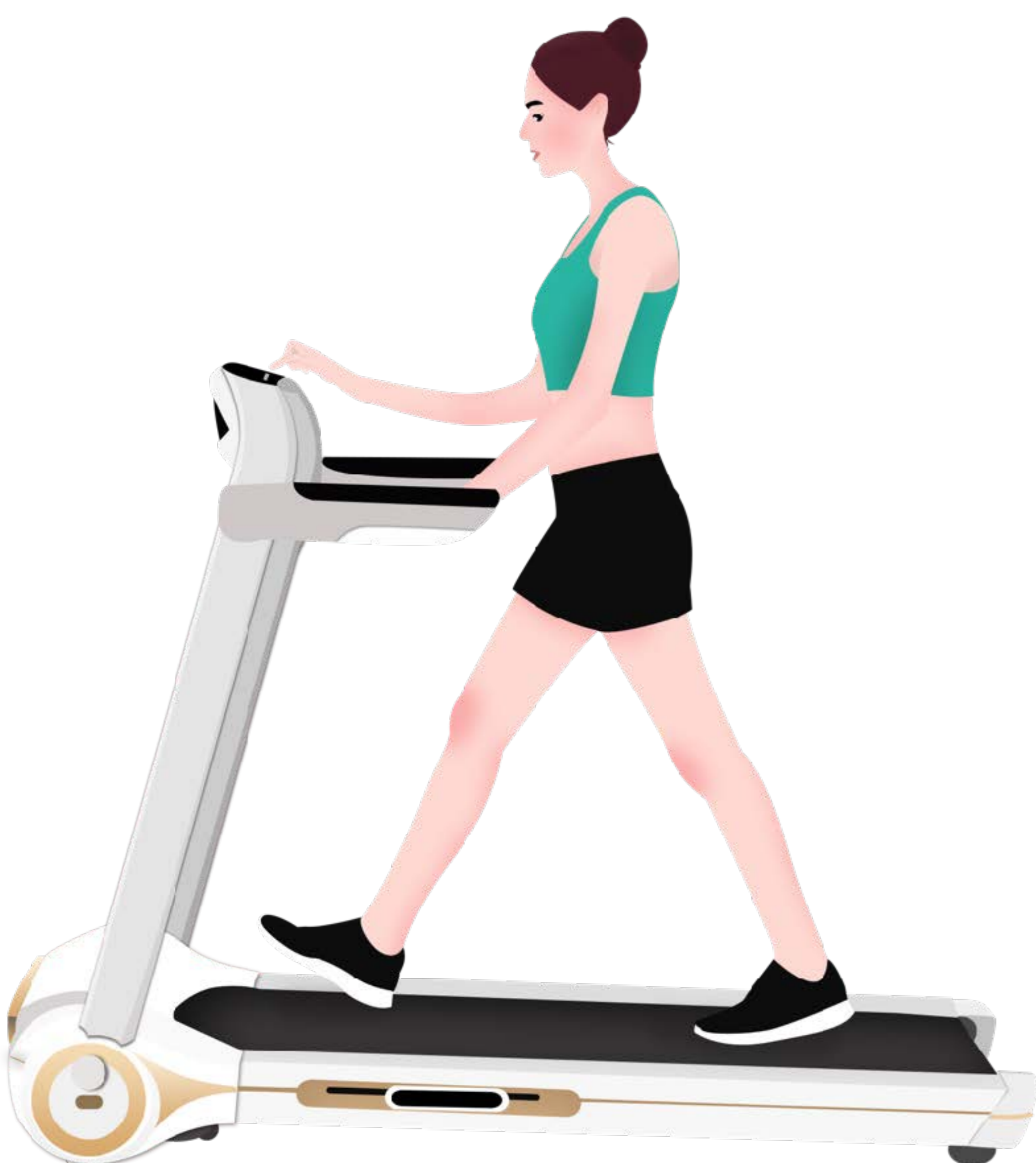
2.3 Maintain a Healthy Lifestyle

Diet and Nutrition



Eat a complete meal every day. Have fresh, hot, cooked, and easily digestible foods, and a balance of protein, carbohydrates, and fiber. Eat an appropriate amount of fresh fruit daily. Wash and peel it before eating it. Drink no less than 1500 ml of water daily.

Exercise



Personal indoor exercises, such as yoga, Tai Chi, QiGong, and tablet support, are suggested.

Practice should take place at least 3 times a week, for at least 150 minutes per week.

Keep Calm and Carry On



Follow the information provided by the authorities, and remain aware of dis- and misinformation and rumors.

Study or work from home. Gradually shift your attention from the epidemic situation to normal work and study. Try not to wear pajamas or other casual home clothing during your working hours. Create an office environment; it will improve your efficiency.

If you are unable to manage the psychological burden in any way, it is best to seek help from the local mental health support services.

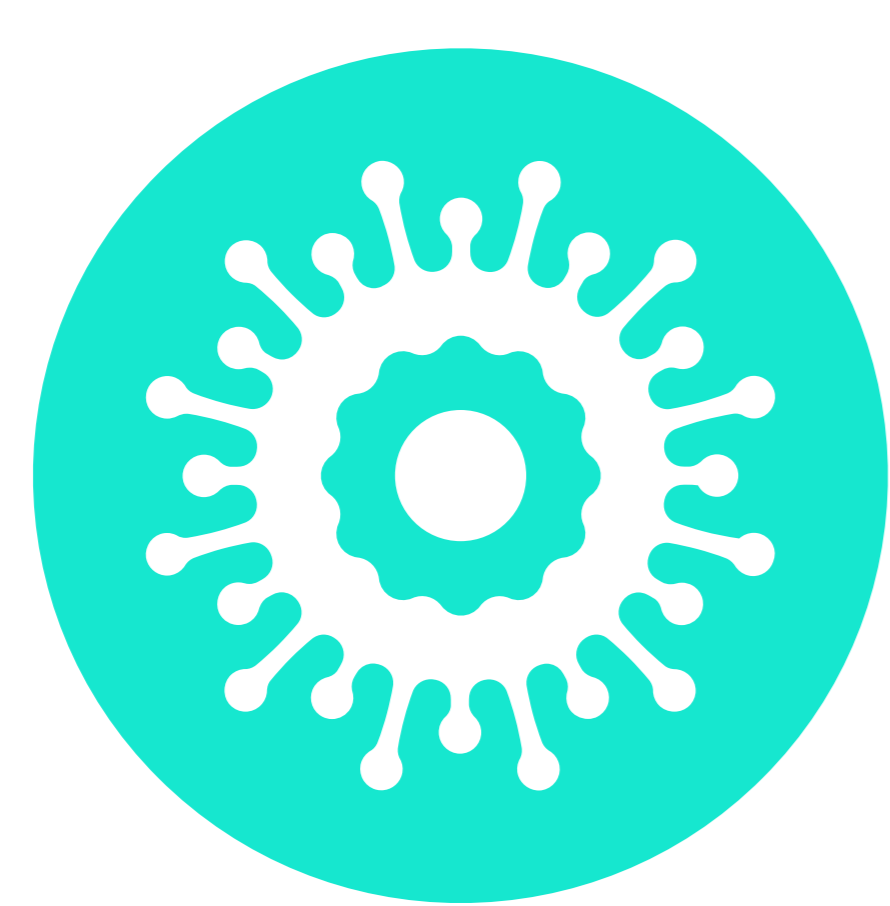


3 What Are the Key Points of Protection for Different Social Scenarios

3.1 At Home

- **How to Disinfect Your Home Thoroughly**
- **Vulnerable Areas in the Home**
- **How to Disinfect Your Home When a Quarantined Person Is Present**
- **What to Do When Returning From a Place Where the Virus Is Spreading**
- **How to Safely Receive Deliveries**

How to Disinfect Your Home Properly



The virus is sensitive to UV and heat (56 °C for 30 minutes). Fat-soluble solvents that can effectively inactivate the virus include ether, minimum 70% alcohol, bleach, peracetic acid (peroxyacetic acid; PAA), and chloroform.



For skin disinfection, use 70-80% alcohol or an Iodophor solution to wipe or soak affected areas.

Home environment disinfection: bleach, bleaching powders, or other disinfectant powders containing chlorine, including effervescent tablets, can be used. Wipe or soak with a solution whose chlorine concentration is 500mg/L or more.

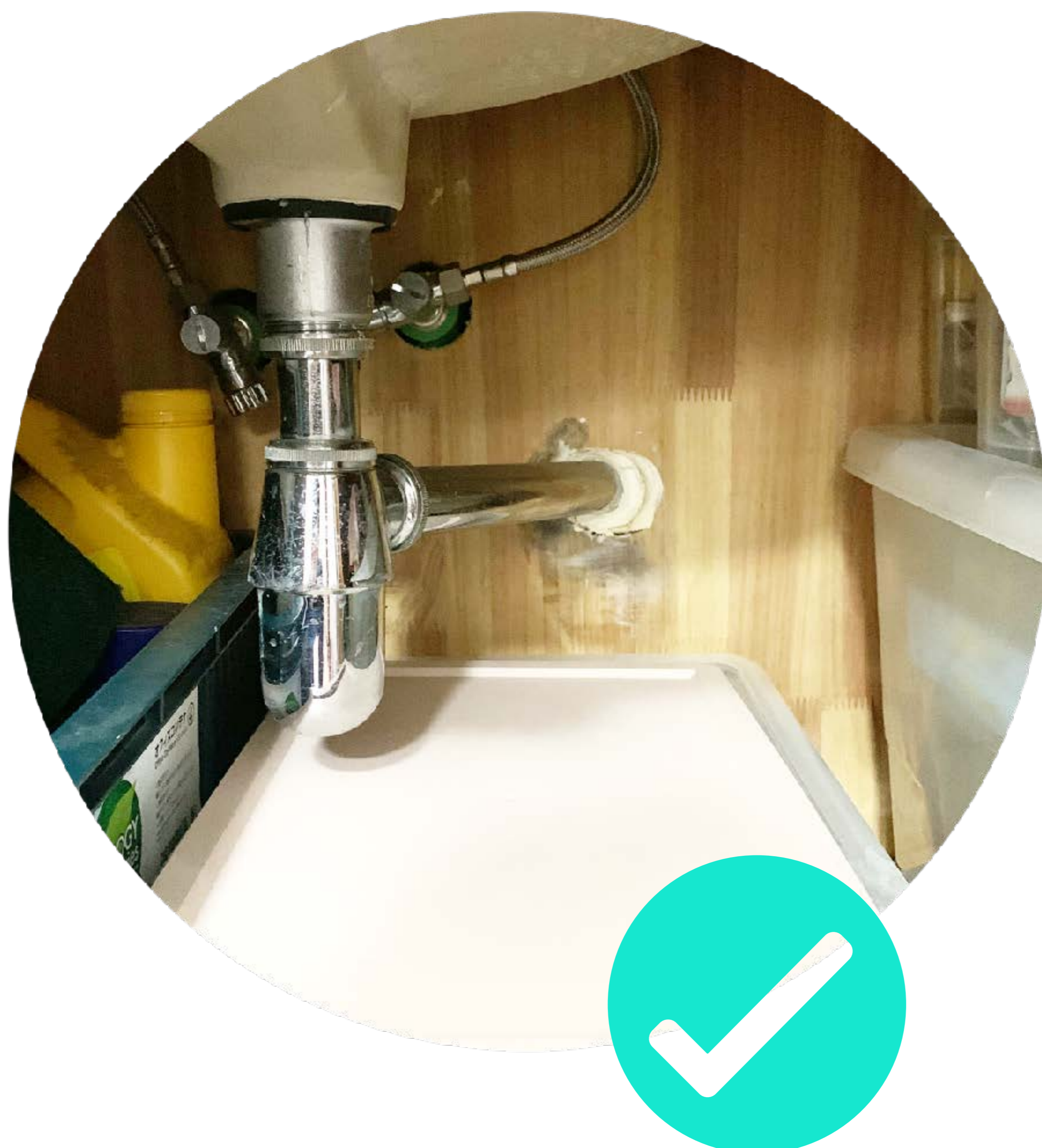
To sterilize heat-resistant articles, boil for 15 minutes.



Vulnerable Areas in the Home



- Spray an aqueous disinfectant solution regularly on doorjambs, thresholds, door handles, flooring (wherever possible), and any floor mats.
- Serve meals individually to each person; avoid communal serving dishes and platters.
- Stop using water fountains.
- Put the toilet seat down before flushing.
- Run water into floor drain regularly.
- Regularly pour water into U-shaped water pipes.
- Turn off central air.



How to Disinfect Your Home When a Quarantined Person Is Present



Use a chlorine bleach-based or a hydrogen peroxide-based disinfectant to clean and disinfect items your family touches frequently, such as countertops, door handles, telephones, wall switches, kettles, sinks, toilets, etc. Use 250-500mg/L of chlorine to create your solution. disinfection time is not less than 30 minutes, and then wipe with water to wipe away the residue at least once a day.



For clothing and textiles that come in close contact with the patient (pajamas, cloths, bed sheets, towels, etc.) use a chlorine-based disinfectant to soak first, then wash with ordinary laundry soap and water. You can also wash these in your machine at 60-90°C and dry thoroughly. Be careful not to shake the dirty clothes and avoid direct contact with your own clothes and skin.



Any used paper towels, masks, etc. should be placed in a special trash bin with a cover, which should be cleaned daily. Spray or sprinkle the garbage with 500mg/L ~ 1000mg/L chlorine-containing disinfectant until it is completely wet, and then tighten the mouth of the plastic bag.



While there has been one instance of a dog being infected in Hong Kong, to date, there is no evidence that a dog, cat or any pet can transmit COVID-19.

Tips: It is best to wear rubber gloves or disposable gloves for all cleaning tasks. After removing the gloves, wash your hands with soap and running water.

What to Do When Returning From a Place Where the Virus Is Spreading



After returning to your place of residence, pay attention to your physical condition and those around you for the following 2 weeks (14 days), and avoid going to public or crowded places.

If the local health department asks you to self-quarantine, don't panic, don't go out, observe your physical condition as required, and regularly update your community doctors.

In case of early clinical symptoms of respiratory infections such as fever (underarm temperature greater than 37.3 °C), cough, shortness of breath, etc., medical surgical masks or N95 masks should be properly worn whenever you go out or have people around you. Follow good respiratory hygiene: cover your mouth and nose with your bent elbow or a tissue when you cough or sneeze.

How to Safely Receive Deliveries



Ask the delivery person to leave the food or parcel at the door. Take the food or package inside after the delivery person leaves to avoid contact between you.

Discard the outer packaging from the food or parcel and then wash your hands immediately afterwards.



3.2 Food Shopping

- **How to Shop at Supermarkets and Fresh Markets**
- **After Arriving Home**

How to Shop at Supermarkets and Fresh Markets



Put on a mask and hat before going out. Avoid public transportation and try to drive, bike, or walk as much as possible.

Avoid touching your mouth, eyes, and nose with your hands after touching public goods and facilities.

Avoid contact with raw meat, animals, garbage, waste water, etc. in the market; wash hands as soon as possible if you touch any of these accidentally.

After Arriving Home



The items bought in the supermarket do not need to be disinfected. Washing your hands often is sufficient, because the virus does not survive (in vitro) for more than 48 hours.

Tips: Remove your gloves carefully.





3.3 At Work

- **What to Do at the Office Building Entrance**
- **How to Take the Elevator**
- **What to Do in Communal Office Spaces**
- **How to Receive Business Visitors and Pay Business Visits**
- **How to Hold a Meeting**
- **What to do after Arriving Home from Work**

What to Do at the Office Building Entrance

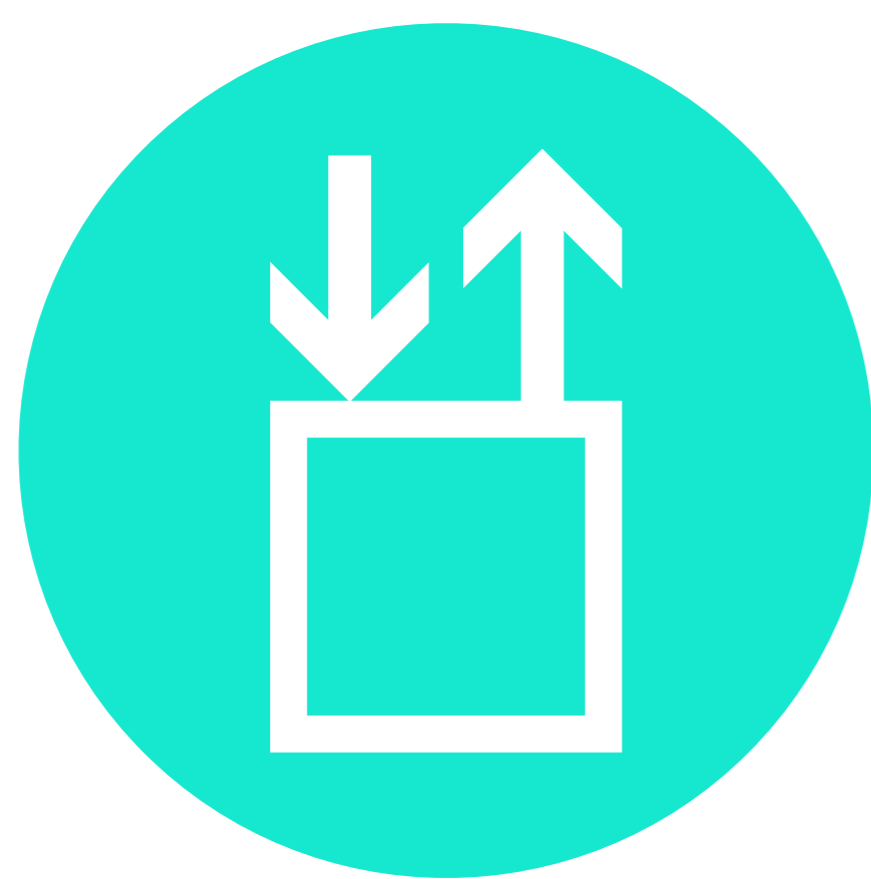


If there is one, submit to a body temperature check. If your armpit temperature is **37.3°C** or above (**99.1°F**), it can be judged as fever. Then you should go home and consult the doctor in time according to your physical condition.



When the virus is spreading rapidly in your area, you and your colleagues can nod your heads when greeting each other.

How to Take the Elevator



Wear a mask before entering the elevator. Wash your hands after touching the elevator buttons. **Avoid touching your mouth, eyes, and nose** with your hands. You can use **an object** to touch the elevator buttons such as paper towel or toothpick and discard them in the designated bin after use. When you and your acquaintances meet, avoid shaking hands.

Tips: Taking the stairs is good for your health. One step is equivalent to walking 6 meters (18 feet). You can also prepare and carry a small bag full of virus prevention supplies.



What to Do in Communal Office Spaces



After arriving at your workstation, wipe the table and stool with **alcohol or disinfectant water**. Then go to the bathroom or kitchen and **wash your hands** with running water and soap or hand sanitizer for at least 20 seconds.



Ventilate the office area 3 times a day for at least 15 minutes each time, and keep yourself warm when ventilating.



Keep a distance of more than **1 meter (3 feet)** from person to person, and wear disposable medical masks when working in shared or open plan office spaces. Follow good respiratory hygiene: cover your mouth and nose with your bent elbow or a tissue when you cough or sneeze. Throw the tissue in **a covered trash** can and wash your hands afterwards. Remember to wash your hands as frequently as possible e.g. after using the toilet, during work breaks and after refilling water bottles, etc.

How to Receive Visitors and Pay Business Visits



Wear a mask and maintain a distance of over 1 meter (3 feet)

Basically, avoid staying anywhere in public for any length of time.

How to Hold a Meeting



Use **video conferencing** whenever possible. If a meeting must be held physically, the room should be ventilated. Participants should wear disposable medical masks and wash their hands before entering the meeting room. Keep at least 1 meter (3 feet) apart away from each other. Bring **your own water glass** if possible. Use bottled water or disposable paper cups if you don't bring your own glass. Public water glasses should **be disinfected very soon after use**. Glasses can be sterilized with sanitizer or boiled water for 15 minutes.



After the meeting, the venue and furniture should be **sprayed or wiped** with a disinfectant containing effective chlorine 250-500mg/L, or disinfectant wipes can also be used for cleaning.

What to do after Arriving Home from Work



Wash your hands with **soap and running water** for less than 20 seconds. Wipe and disinfect items you come into frequent contact with, such as **mobile phones, keys, and backpacks** with 70-80% alcohol. **Doormats** are regularly sprayed and disinfected. **Ventilate** rooms for at least 30 minutes.



3.4 At School

- **On the Way to School**
- **In the Classroom**
- **Studying in the Library**
- **In the Cafeteria**
- **How to Disinfect School Housing Facilities**

On the Way to School



Wear masks and disposable gloves at all times and keep your distance from others.

Reduce contact with public goods and parts.

Follow good respiratory hygiene: cover your mouth and nose with your bent elbow or a tissue when you cough or sneeze. Throw the tissue into a covered trash can and wash your hands afterwards.

Keep travel tickets if required.

In the Classroom



The classroom should be **ventilated** once in the morning, at noon, and in the evening, each time not less than 15 minutes.

Teachers and students need to check their body temperature daily, wear masks as much as possible, and **sit apart** as much as possible.

Studying in the Library



Take your temperature check before entering the library.

Sit apart as much as possible.

After touching public surfaces (elevators, printers, water fountains, etc.), wash your hands immediately or use hand sanitizer to clean your hands.

In the Cafeteria



Take your meals separately to avoid crowds.

How to Disinfect School Housing Facilities



Use chlorine bleach or hydrogen peroxide disinfectant to wipe **frequently used public items and components such as tables, chairs, toilets, countertops, etc.**, Use 250-500mg/L of chlorine to create your solution., and then wipe down surfaces with water to remove the residue. Disinfect these items every other day and clean the floor of the bath and toilet at least once a day.

Sleeping quarters should be ventilated once in the morning, once at noon, and once in the evening, for at least 15 minutes at a time.

Do not mix items. Pay attention to personal hygiene. Disinfect personal goods after returning to the dormitory with 70-80% ethanol.

Report any signs of discomfort immediately.



3.5 Transportation

- Taking Public Transportation
- Riding Your Bike
- Driving Your Car

Taking Public Transportation



Wear a properly fitted mask at all times.

Cooperate with staff if there are body temperature checks.

Avoid contact with people who appear to have a fever or are coughing or displaying other symptoms. Keep at least 1 meter (3 feet) of distance between yourself and anyone exhibiting symptoms.

Cover your nose and mouth with a tissue or your elbow when you cough or sneeze.

Limit your contact with public surfaces.

Avoid touching your mouth, nose, and eyes with your hands.

Tips: Carry a 70-80% alcohol hand sanitizer or disinfection wipes.

Riding your Bike



Wear a mask at all time.

Keep a proper distance from other pedestrians.

Disinfect your bike's handlebars before riding.

Wash your hands after riding.

Driving your Car



Ventilate the car. Masks required for multiple passengers. Wash your hands as soon as you reach your destination. Periodically use 70-80% alcohol to wipe door handles, car keys, steering wheels and other places and items you frequently touch. If a suspected or confirmed case is found among your car's passengers, all surfaces inside the car and the external door handles should be disinfected under the guidance of professionals.



3.6 Seeking Medical Care

- When to Seek Medical Care
- The Consultation Process

When to Seek Medical Care



If the following two conditions are met at the same time, medical examination, diagnosis, and treatment should be initiated immediately.

1. **Fever** (armpit temperature $\geq 37.3^{\circ}\text{C}$), cough, shortness of breath and other symptoms of acute respiratory infections.
 2. Have been to Wuhan and surrounding areas, or have been in contact with people returning from Wuhan and surrounding areas within 14 days, or **the community where has confirmed cases**.
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The Consultation Process



Go to the nearest hospital and wear a medical mask or N95 mask. **Avoid taking public transportation. Open the windows** when taking private cars. Keep at least 1 meter (3 feet) away from others. When you visit the doctor, you should tell the truth about the illness and its evolution, especially any recent travel itineraries, and provide your residence history, contact history with confirmed or suspected patients, and animal contact history.

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About SustainX

Design Research Center for a Sustainable Future

The research center is led by Professor Lou Yongqi. It is oriented towards sustainable design innovation, focusing on the research of "complex sociotechnical systems design" as highlighted in the "DesignX Agenda," including systematically thinking about new roles, new methods, new paths, and new tools design can use to solve problems related to the environment, health, transportation, human life, industry, education, and so on in the era of Artificial Intelligence. The research interests of the center include cutting-edge theories for innovative design, social innovation design, collaborative design and place-making, design policy, and strategic design.



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